Timken Tyger River

South Carolina Manufacturing Extension Partnership

Lean Tools and Techniques Implemented

Client Profile:
The Tyger River plant of Timken was opened in 1965 in Union, South Carolina. The 337,300 square foot plant employs 420 associates and manufactures a wide range of bearings up to 84 inches in diameter. The company serves many major original equipment and distributor customers in the paper, steel, construction, government and general industries markets globally. Driven by the need to be more responsive to its customer, the plant manager, Lou Balbo, made the decision in 1998 to implement Lean Manufacturing principles in the Union facility. Labeled TRP-2000, the goal was to move the plant from being process oriented to product oriented thus allowing the company to produce to order instead of manufacturing and maintaining expensive finished goods inventory.

Situation:
Market surveys conducted by Timken found that many customers were willing to pay more for on-demand service. The challenge for Timken was to shift the culture and methodology in the plant. Operating as a traditional batch process oriented manufacturing plant until the late 1990s, Timken used a forecast to drive the manufacturing processes. The process oriented plant layout coupled with lengthy setup and manufacturing time drove the plant to rely on large lot sizes to insure on-time delivery and customer service. This drove manufacturing and inventory costs up. In 1998, the company utilized internal corporate engineering assistance to begin Phase 1 of the TRP implementation by developing a Value Stream Map that would serve as the 'roadmap' for project execution. The goal was to convert from manufacturing large batches of product to one piece flow by changing to a product oriented, cellular layout. This three-year effort resulted in the company successfully designing manufacturing cells of excellence. After completing the physical transformation of the facility, the company looked to the South Carolina Manufacturing Extension Partership (SCMEP), a NIST MEP network affiliate, and their resource, PSLMG, to assist and facilitate the cultural transformation. In 2001, Larry Jolly, Manufacturing Specialist with SCMEP was introduced to Timken personnel. At that time the plant had a significant capital budget and was in the process of adding new, more modern equipment to the manufacturing cells. Timken looked to SCMEP to provide the resources to refine the TRP implementation and move the company closer to a make to order environment.

Solution:
To further refine the manufacturing cells and improve the manufacturing velocity to reduce lead time during Phase 2 TRP implementation, SCMEP worked with Timken to apply 5S and standard work to the existing cells. Focusing on product families, the company used SCMEP resources to facilitate several 5S and standard work events with more planned for the future including a train the trainer exercise to insure long term process viability. During the standard work events, it was determined that one of the biggest hurdles to the one-piece flow was setup time. To further refine the cells, SCMEP also provided resources for a setup reduction kaizen.

Results:
* Reduced lead time by over 70 percent.
* Reduced setup time by 40 percent.
* Increased capacity of cell and improved output.
* Doubled productivity in last four years.
* Increased business for non-domestic overseas requirements.
* Improved response to customers has improved market share.
* Created new jobs.

Testimonial:
"Standard work coupled with the setup reduction has allowed the Timken-Tyger River Plant to be able to flow more product through the cells to respond to customers quickly with better quality. We have been very impressed with the resources provided by SCMEP and plan to continue to utilize their services to further improve our facility. We are better off, and the customer is better off when we can respond more quickly. We are committed to securing the jobs at this plant. When our business is healthy and we are totally globally competitive, jobs are safe."

Matt Nelson, Lean Six Sigma Site Leader